FILE 'HCAPLUS' ENTERED AT 13:37:54 ON 01 JUL 2009

| | | | |
|---|---|---|---|
| L1 | 196846 | S | STARCH OR AMYLOSE OR AMYLOPECTIN |
| L2 | 1292 | S | (BRANCHING ENZYME) |
| L3 | 0 | S | DEGREE OF BRNACHING |
| L4 | 2335 | S | DEGREE OF BRANCHING |
| L5 | 9 | S | L1 AND L2 AND L4 |
| L6 | 485 | S | BRANCHING DEGREE |
| L7 | 4 | S | L1 AND L2 AND L6 |
| L8 | 13 | S | L5 OR L7 |

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=> file hcaplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.22       0.22

FILE 'HCAPLUS' ENTERED AT 13:37:54 ON 01 JUL 2009
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FILE COVERS 1907 - 1 Jul 2009  VOL 151 ISS 1
FILE LAST UPDATED: 30 Jun 2009  (20090630/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED:  Apr 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE:  Apr 2009

HCAplus now includes complete International Patent Classification (IPC)
reclassification data for the second quarter of 2009.

CAS Information Use Policies apply and are available at:

http://www.cas.org/legal/infopolicy.html

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> s starch or amylose or amylopectin
        190503 STARCH
         14090 AMYLOSE
          7522 AMYLOPECTIN
L1      196846 STARCH OR AMYLOSE OR AMYLOPECTIN

=> s (branching enzyme)
         62224 BRANCHING
        897716 ENZYME
L2        1292 (BRANCHING ENZYME)
               (BRANCHING(W)ENZYME)

=> s degree of brnaching
       4599211 DEGREE
             3 BRNACHING
L3           0 DEGREE OF BRNACHING
               (DEGREE(1W)BRNACHING)

=> s degree of branching
       4599211 DEGREE
         62224 BRANCHING
L4        2335 DEGREE OF BRANCHING
               (DEGREE(1W)BRANCHING)

=> s l1 and l2 and l4
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L5            9 L1 AND L2 AND L4

=> s branching degree
         62224 BRANCHING
       4599211 DEGREE
L6           485 BRANCHING DEGREE
                 (BRANCHING(W)DEGREE)

=> s l1 and l2 and l6
L7             4 L1 AND L2 AND L6

=> s l5 or l7
L8            13 L5 OR L7

=> d l8 1-13 ti abs bib hitstr

L8   ANSWER 1 OF 13  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Synthesis of branched poly-glucans by the tandem action of potato
     phosphorylase and Deinococcus geothermalis glycogen branching
     enzyme
AB   An enzymic tandem reaction is described in which the enzymes phosphorylase
     and Deinococcus geothermalis glycogen branching enzyme
     (Dg GBE) catalyze the synthesis of branched polyglucans from
     glucose-1-phosphate (G-1-P).  Phosphorylase consumes G-1-P and polymerizes
     linear amylose while Dg GBE introduces branching points on the
     α-(1 → 6) positions by reshuffling short oligosaccharides.
     The resulting branched polyglucans have an unusually high degree
     of branching of 11%.
AN   2008:1008302  HCAPLUS <<LOGINID::20090701>>
DN   149:426162
TI   Synthesis of branched poly-glucans by the tandem action of potato
     phosphorylase and Deinococcus geothermalis glycogen branching
     enzyme
AU   van der Vlist, Jeroen; Reixach, Marta Palomo; van der Maarel, Marc;
     Dijkhuizen, Lubbert; Schouten, Arend Jan; Loos, Katja
CS   Department of Polymer Chemistry, Zernike Institute for Advanced Materials,
     University of Groningen, Groningen, 9747 AG, Neth.
SO   Macromolecular Rapid Communications (2008), 29(15), 1293-1297
     CODEN: MRCOE3; ISSN: 1022-1336
PB   Wiley-VCH Verlag GmbH & Co. KGaA
DT   Journal
LA   English
OS   CASREACT 149:426162
RE.CNT  22    THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8   ANSWER 2 OF 13  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Novel slowly digestible storage carbohydrate
AB   Slowly digestible storage carbohydrates (starch, glycogen) have
     a branching degree ≥8.5% and a side chain
     composition comprising ≥10% of d.p. 5-7.  The slowly digestible
     carbohydrates can be produced by treating the substrate (glycogen,
     starch) from a native source with a glycogen-branching
     enzyme derived from Rhodothermus obamensis, Rhodothermus marinus,
     Deinococcus radiodurans, or Deinococcus geothermalis.
AN   2008:852226  HCAPLUS <<LOGINID::20090701>>
DN   149:127274
TI   Novel slowly digestible storage carbohydrate
IN   Van der Maarel, Marc Jos Elise Cornelis; Binnema, Doede Jacob; Semeijn,
     Cindy; Buwalda, Pieter Lykle
PA   Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek
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Tno, Neth.
SO Eur. Pat. Appl., 20pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 2

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI EP 1943908 | A1 | 20080716 | EP 2006-77345 | 20061229 |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS | | | | |
| WO 2008082298 | A2 | 20080710 | WO 2007-NL50708 | 20071228 |
| WO 2008082298 | A3 | 20080821 | | |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA | | | | |
| PRAI EP 2006-77345 | A | 20061229 | | |

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Novel slowly digestible storage carbohydrate
AB Slowly digestible storage carbohydrates (starch, glycogen) have a branching degree ≥8.5% and a side chain composition comprising ≥10% of d.p. 5-7. The slowly digestible carbohydrates can be produced by treating the substrate (glycogen, starch) from a native source with a glycogen-branching enzyme derived from Rhodothermus obamensis, Rhodothermus marinus, Deinococcus radiodurans, or Deinococcus geothermalis.
AN 2008:824836 HCAPLUS <<LOGINID::20090701>>
DN 149:127270
TI Novel slowly digestible storage carbohydrate
IN Van der Maarel, Marc Jos Elise Cornelis; Binnema, Doede Jacob; Semeijn, Cindy; Buwalda, Pieter Lykle; Sanders, Pieter
PA Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek TNO, Neth.
SO PCT Int. Appl., 28pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI WO 2008082298 | A2 | 20080710 | WO 2007-NL50708 | 20071228 |
| WO 2008082298 | A3 | 20080821 | | |
| W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, | | | | |

TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA
EP 1943908 A1 20080716 EP 2006-77345 20061229
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, RS
PRAI EP 2006-77345 A 20061229

L8 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Expression of Escherichia coli branching enzyme in caryopses of transgenic rice results in amylopectin with an increased degree of branching
AB Physiochem. properties of starch are dependent on several factors including the relative abundance of amylose and amylopectin, and the degree of branching of amylopectin. Utilizing Agrobacterium-mediated transformation, a construct containing the coding region of branching enzyme of Escherichia coli, under transcriptional control of the rice (Oryza sativa L.) starch-branching enzyme promoter was introduced into rice cv. Nakdong. To enhance glgB expression, the first intron of rice starch-branching enzyme and the matrix attachment region (MAR) sequence from chicken lysozyme were included in the expression vector. Eleven independent transgenic rice plants were generated. Southern blot anal. indicated that the copy number of glgB integrated into transgenic rice varied from one to five. High-performance liquid chromatog. anal. of starch from transgenic lines revealed that amylopectin from transgenic lines exhibited greater branching than that of non-transgenic rice. The A/B1 ratio in amylopectin increased from 1.3 to 2.3 and the total branching ratio, A+B1/B-rest, increased from 6 to 12 in transgenic rice. The observed increase in the short-chain fractions with a d.p. between 6 and 10 is expected to have a significant effect on retrogradation. Our study demonstrates that amylopectin branching can be altered in vivo, thus changing the physicochem. properties of starch.
AN 2005:180917 HCAPLUS <<LOGINID::20090701>>
DN 142:478866
TI Expression of Escherichia coli branching enzyme in caryopses of transgenic rice results in amylopectin with an increased degree of branching
AU Kim, Won-Seok; Kim, Jukon; Krishnan, Hari B.; Nahm, Baek Hie
CS Department of Bioscience and Bioinformatics, Myongji University, Yongin, 449-728, S. Korea
SO Planta (2005), 220(5), 689-695
CODEN: PLANAB; ISSN: 0032-0935
PB Springer GmbH
DT Journal
LA English
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Controlling the change of starch storage in plants by transfection of starch synthesis-related genes
AB The method comprises constructing chimeric gene of starch synthesis-related gene, and then transforming into starch -storing vegetable (such as paddy, corn, wheat, rye, barley, oat, sweet potato, potato, or their cells or tissues). The chimeric gene contains

successively a promoter (such as constitutive promoter, tissue-specific promoter, organ-specific promoter, inducible promoter, or compound promoter and regulatory element, preferably promoter of protein GluA-1), starch synthesis-related gene (such as rice starch branching enzyme 1, rice starch branching enzyme 3, rice soluble starch synthase, or rice starch debranching enzyme), and a terminator. The change in the content of amylose and amylopectin or in the branching degree of starch may be controlled by the invented method.

AN 2003:861189 HCAPLUS <<LOGINID::20090701>>
DN 140:230504
TI Controlling the change of starch storage in plants by transfection of starch synthesis-related genes
IN Zhu, Zhen; Xu, Junwang
PA Institute of Genetics, Chinese Academy of Sciences, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 42 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI CN 1384197 | A | 20021211 | CN 2001-115823 | 20010508 |
| PRAI CN 2001-115823 | | 20010508 | | |

L8 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterisation of the in vitro products of potato starch branching enzymes I and II
AB An enzyme substrate obtained by ethanol fractionation of linear dextrins was branched by potato starch branching enzymes (SBE). During the branching process, samples were withdrawn from the incubation mixture and the chain length distributions were analyzed by high performance anion exchange chromatog. (HPAEC). The relative composition of chains with a degree of polymerization of 9-35 was essentially constant throughout the branching process for both SBEI and SBEII. This showed that the change in size and structure of the substrate during the branching reaction did not considerably affect the patterns of chains produced by the enzymes. Chain length patterns as well as branching rates were different for the two SBE isoforms, supporting the theory that they have different roles in amylopectin synthesis. Despite the differences in chain length profiles, the degree of branching was found to be 3.7% for both SBE products when analyzed by NMR. Using proton 2D-NMR, the structural differences between intact branching products and their β-limit dextrins were determined
AN 2002:649191 HCAPLUS <<LOGINID::20090701>>
DN 137:290790
TI Characterisation of the in vitro products of potato starch branching enzymes I and II
AU Andersson, L.; Andersson, R.; Andersson, R. E.; Rydberg, U.; Larsson, H.; Aman, P.
CS Department of Food Science, Swedish University of Agricultural Sciences, Uppsala, SE-750 07, Swed.
SO Carbohydrate Polymers (2002), 50(3), 249-257
CODEN: CAPOD8; ISSN: 0144-8617
PB Elsevier Science Ltd.
DT Journal
LA English
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The influence of an increased degree of branching on the physicochemical properties of starch from genetically modified potato
AB Transgenic potatoes were studied which contained starch with an increased degree of branching of the starch as a result of the expression of the glycogen branching enzyme gene (glgB) of Anacystis nidulans or Escherichia coli. These trans-genes were expressed in a normal amylose-containing wild-type and in an amylose-free (amf) potato mutant. The degree of branching of these starches had increased up to 25%. This increase in the degree of branching could be partly explained by the presence of 5-15% more short chains in the amylopectin, the socalled A chains. The influence of the altered degree of branching on the physico-chemical properties of the starches was investigated. No change in granule size or morphol. could be observed for the altered starches of these transgenic plants. Regardless of the presence or absence of amylose, starches with an increased degree of branching showed a shift towards more short chains of the amylopectin, a lower peak viscosity and for the amylose-free starch a tendency to form weaker gels. These results show that increasing the degree of branching of amylopectin leads to specific changes in the physico-chemical properties of the starch.
AN 1998:733594 HCAPLUS <<LOGINID::20090701>>
DN 130:78708
TI The influence of an increased degree of branching on the physicochemical properties of starch from genetically modified potato
AU Kortstee, Anne J.; Suurs, Luc C. J. M.; Vermeesch, Angela M. G.; Keetels, Christel J. A. M.; Jacobsen, Evert; Visser, Richard G. F.
CS Graduate School of Experimental Plant Sciences, Department of Plant Breeding, Wageningen Agricultural University (WAU), Wageningen, 6700 AJ, Neth.
SO Carbohydrate Polymers (1998), 37(2), 173-184
CODEN: CAPOD8; ISSN: 0144-8617
PB Elsevier Science Ltd.
DT Journal
LA English
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of starch from genetically modified potato after transformation with the bacterial branching enzyme of Anacystis nidulans
AB Physicochem. properties of starch from transgenic potato plants were investigated. Plants transformed with a construct carrying a bacterial branching enzyme showed an increased degree of branching of starch. One of the transformants had a lowered amylose content.
AN 1997:613429 HCAPLUS <<LOGINID::20090701>>
DN 127:275392
OREF 127:53717a,53720a
TI Characterization of starch from genetically modified potato after transformation with the bacterial branching enzyme of Anacystis nidulans
AU Kortstee, A. J.; Suurs, L. C. J. M.; Vermeesch, A. M. G.; Visser, R. G. F.
CS Graduate School of Experimental Plant Sciences, Department of Plant Breeding, Agricultural University Wageningen, Wageningen, 6700 AJ, Neth.

SO Special Publication - Royal Society of Chemistry (1997), 205(Starch), 238-247
CODEN: SROCDO; ISSN: 0260-6291
PB Royal Society of Chemistry
DT Journal
LA English
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Expression of Escherichia coli branching enzyme in tubers of amylose-free transgenic potato leads to an increased branching degree of the amylopectin
AB In order to increase the branching degree of potato tuber starch, the gene encoding branching enzyme (glgB) of Escherichia coli was expressed in the amylose-free potato mutant. The E. coli glgB was cloned in the binary vector pBIN19 under the transcriptional control of the potato Granule Bound Starch Synthase (GBSS) promoter and transit peptide sequence. The E. coli glgB was cloned behind the two N-terminal amino acids of the GBSS mature protein, creating a chimeric protein. Transgenic plants were obtained which expressed the E. coli branching enzyme as was shown by the presence of mRNA and protein in the tubers. Correctly processed protein was found both in the soluble and starch granule bound protein fraction. Anal. of the starch showed an increase in the branching degree (DE) of up to 25% more branchpoints. The increase in the number of branchpoints was due to the presence of more short chains, with a d.p. (DP) of 16 glucose-residues or less in the amylopectin. Changes in other characteristics of the starch, such as average chain length (CL) and λmax, indicated a more branched structure for starch of transformed plants as well.
AN 1996:502541 HCAPLUS <<LOGINID::20090701>>
DN 125:163336
OREF 125:30475a,30478a
TI Expression of Escherichia coli branching enzyme in tubers of amylose-free transgenic potato leads to an increased branching degree of the amylopectin
AU Kortstee, Anne J.; Vermeesch, Angela M. S.; De Vries, Beja J.; Jacobsen, Evert; Visser, Richard G. F.
CS Graduate School Experimental Plant Sciences, Agricultural University, Wageningen, 6700 AJ, Neth.
SO Plant Journal (1996), 10(1), 83-90
CODEN: PLJUED; ISSN: 0960-7412
PB Blackwell
DT Journal
LA English

L8 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Introduction of sense and antisense cDNA for branching enzyme in the amylose-free potato mutant leads to physico-chemical changes in the starch
AB One isoform of the branching enzyme (BE; E.C. 2.4.1.18) of potato (Solanum tuberosum L.) is known and catalyzes the formation of α-1,6 bonds in a glucan chain, resulting in the branched starch component amylopectin. Constructs containing the antisense- or sense-oriented distal 1.5-kb part of a cDNA for potato BE were used to transform the amylose-free (amf) mutant of potato, the starch of which stains red with iodine. The expression of the endogenous BE gene was inhibited either largely or fully as judged by the decrease or absence of the BE mRNA and protein. This

resulted in a low percentage of starch granules with a small blue core and large red outer layer. There was no effect on the amylose content, degree of branching or λmax of the iodine-stained starch. However, when the physico-chemical properties of the different starch suspensions were assessed, differences were observed, which although small indicated that starch in the transformants was different from that of the amf mutant.

AN 1996:48388 HCAPLUS <<LOGINID::20090701>>
DN 124:82247
OREF 124:15321a,15324a
TI Introduction of sense and antisense cDNA for branching enzyme in the amylose-free potato mutant leads to physico-chemical changes in the starch
AU Flipse, E.; Suurs, L.; Keetels, C. J. A. M.; Kossmann, J.; Jacobsen, E.; Visser, R. G. F.
CS Grad. Sch. Experimental Plant Sci., Agric. Univ., Wageningen, 6700 AJ, Neth.
SO Planta (1996), 198(3), 340-7
CODEN: PLANAB; ISSN: 0032-0935
PB Springer
DT Journal
LA English

L8 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Controlling the degree of branching in plant starches by controlling the level of debranching enzyme activity
AB Methods for controlling the degree of branching of starches and of their amylopectin content by modulating the level of debranching activity in the plant are described. Branching enzyme activity can be lowered by either using antisense expression constructs or by expressing a truncated gene encoding a product that inhibits debranching enzyme activity (no data). The activity can be increased by placing the gene under control of a strong promoter. The purification and characterization of the debranching enzyme of potato are described.
AN 1995:520507 HCAPLUS <<LOGINID::20090701>>
DN 122:261373
OREF 122:47593a,47596a
TI Controlling the degree of branching in plant starches by controlling the level of debranching enzyme activity
IN Kossmann, Jens
PA Institut fuer Genbiologische Forschung Berlin GmbH, Germany
SO Ger. Offen., 13 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | DE 4327165 | A1 | 19950216 | DE 1993-4327165 | 19930809 |
| | CA 2169174 | A1 | 19950216 | CA 1994-2169174 | 19940808 |
| | WO 9504826 | A1 | 19950216 | WO 1994-EP2623 | 19940808 |
| | W: AU, CA, HU, JP, KR, RU, UA, US | | | | |
| | RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | AU 9475352 | A | 19950228 | AU 1994-75352 | 19940808 |
| | AU 693469 | B2 | 19980702 | | |
| | EP 713531 | A1 | 19960529 | EP 1994-925439 | 19940808 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| | HU 73740 | A2 | 19960930 | HU 1996-285 | 19940808 |
| | JP 09501052 | T | 19970204 | JP 1994-506224 | 19940808 |

| | | | | | |
|---|---|---|---|---|---|
| | US 6001628 | A | 19991214 | US 1996-596257 | 19960418 |
| | US 6433253 | B1 | 20020813 | US 1999-370644 | 19990806 |
| PRAI | DE 1993-4327165 | A | 19930809 | | |
| | WO 1994-EP2623 | W | 19940808 | | |
| | US 1996-596257 | A3 | 19960418 | | |

L8 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The degree of branching in (α1,4)-(α1,6)-linked glucopolysaccharides is dependent on intrinsic properties of the branching enzymes
AB Branching enzymes from rat and rabbit liver, as well as from potato and maize, were prepared They were almost free from contaminating glucan-degrading enzymes. In sweet corn maize, 2 sep. fractions with (α1,4)glucan-(α1,4)glucan α6-glycosyltransferase activities were obtained. One of them synthesized amylopectin, the branched component of starch, in the presence of phosphorylase and glucose 1-phosphate, whereas the other fraction synthesized phytoglycogen. Furthermore, in a maize variety which does not accumulate phytoglycogen, only 1 fraction of branching activity was found which formed amylopectin under the above-mentioned conditions. Comparative analyses performed with native (α1,4)-(α1,6)glucopolysaccharides, and those synthesized in vitro, with the branching enzyme from the same tissue, demonstrated a close similarity between both glucans. It may be concluded that the branching enzyme is responsible for the specific degree of (α1,6) branch linkages found in the native polysaccharide.
AN 1987:632067 HCAPLUS <<LOGINID::20090701>>
DN 107:232067
OREF 107:37211a,37214a
TI The degree of branching in (α1,4)-(α1,6)-linked glucopolysaccharides is dependent on intrinsic properties of the branching enzymes
AU Tolmasky, Diana Silvia; Krisman, Clara Rebeca
CS Inst. Invest. Bioquim. 'Fund. Campomar', Fac. Cienc. Exactas y Nat., Buenos Aires, Argent.
SO European Journal of Biochemistry (1987), 168(2), 393-7
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English

L8 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Metabolism of the reserve polysaccharide of Streptococcus mitis. Properties of branching enzyme, and its effect on the activity of glycogen synthetase
AB Branching enzyme (I) (EC 2.4.1.18) isolated from intracellularexts. of several strains of S. mitis increased branching in maltodextrins, potato amylose (II), and amylopectin (III). Maltodextrins with an average degree of polymerization >20 were good substrates for the enzyme, and the rate of I action increased with chain length. The enzyme had a higher affinity toward branching substrates than linear polysaccharides, and evidence of its ability to convert glycogen into a more highly branched product is presented. Glycogen synthetase synthesizes glycogen. When I is also present the resulting glycogen contains many more branches; without synthetase, I reorganizes the sugar substrates into sugars with branches. There was a moderate effect of citrate (IV) on the I activity in digests containing III; the effect when II was the substrate was far more extensive, the increase in activity varying between 4- and 11-fold. Maximum activity on both substrates was found in 0.05M IV. I activity of crude exts. of S. mitis increased ≥2-fold when IV was added to II and III digests. In the absence of IV, 0.05M

Tris. HCl buffer (pH 7.0) increased I activity in III and II digests by 70 and 35%, resp. In the presence of IV buffer, molybdate (≤2%) did not inhibit I activity with either II or III digests; when phosphate replaced IV buffer in these digests, 85 and 100% inhibition was observed with 2% molybdate with the resp. digests. Addition of 0.3-0.5 mM mercuric chloride to digests containing IV completely inhibited enzyme activity. There is a possibility that the IV effect could constitute a mechanism for regulating the degree of branching of S. mitis glycogen. For in the absence of IV, glycogen synthetase was fully active, while the ability of I to act on long linear chains decreased. When IV was present, I showed full activity, while 0.04M IV caused 90% inhibition of the synthetase. Thus, in the absence of IV the chains could lengthen (II synthesis), and in the presence of IV the chains would become branched.

AN 1971:458933 HCAPLUS <<LOGINID::20090701>>
DN 75:58933
OREF 75:9275a,9278a
TI Metabolism of the reserve polysaccharide of Streptococcus mitis. Properties of branching enzyme, and its effect on the activity of glycogen synthetase
AU Walker, Gwen Jean; Builder, Janet E.
CS Inst. Dent. Res., Sydney, Australia
SO European Journal of Biochemistry (1971), 20(1), 14-21
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English